

REMARKS

Reconsideration of the application in light of the following remarks is respectfully requested.

Status of the Claims

Claims 1 and 15 have been amended to provide that “the fault tolerance, the load balance and the failover are performed transparently.” No new matter is added. Support for the amendment to claims 1 and 15 can be found in the Specification at, generally, page 8, lines 21-23 and page 10, lines 17-19. Claims 9 and 14 have been amended to be consistent with the changes to claim 1. Further, new claims 23 and 24 have been added to provide protection for load balance along and in combination with failover.

Claims 1-24 are pending.

Allowable Subject Matter

Applicants thank the Examiner for indication that claims 3-8 and 11 contain allowable subject matter and objecting to them only based on their dependence on a rejected base claim.

Allowable claim 3 has been rewritten into independent form, in accordance with the Examiner’s suggestion. Applicant submits that amended claim 3 and its dependant claims 4-8 and 11 are now in condition for allowance.

Rejections Under 35 U.S.C. §101

Claims 1-22 stand rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. In particular, the Examiner contents that the claims are directed to method steps, which can be practiced mentally in conjunction with pen and paper, therefore they are directed to non-statutory subject matter. The Examiner specifically cites MPEP 21061 [sic. 2106] in support of his positon. However, a search of this section of the MPEP fails to find any support for the Examiner’s position and in view of *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 149 F.3d 1368 (Fed. Cir. 1998), such a rejection cannot be maintained where the process is

novel and provides a useful, concrete and tangible result. As noted in *Musco Corp. v. Qualite, Inc.*, 41 U.S.P.Q.2d 1954, 1961 (Fed. Cir. 1997) the “existence of mental steps in the claims or specifications of a patent do not, in and of themselves, invalidate the patent. But where, as here, the claimed subject matter … is composed solely of mental steps, at the very least, some aspect of these mental steps must be non-obvious, and the specification must describe this same aspect so as to enable the skilled artisan to practice the invention.” Thus, at most, “mental steps” is a basis for a rejection under section 102, 103 or 112, not section 101. Nevertheless, in accordance with the Examiner’s recommendation, independent claims 1 and 15 have been amended to include the term, a “computer implemented method”, to clearly indicate that a computer is utilized in the claimed method.

Rejections Under 35 U.S.C. §103(a)

Claim 1 stands rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,209,018 to Ben-Shachar et al. (“Ben-Shachar”). Claims 2 and 9 stand rejected as being unpatentable over Ben-Shachar in view of “JR (Java Reflective Broker)”. Claims 10, 12 and 13 stand rejected as being unpatentable over Ben-Shachar in view of Arno. Claim 14 stands rejected as being unpatentable over Ben-Shachar in view of “Geoffrey (The Gateway system: Uniform Web Based Access to Remote Resource)”. Claims 15 and 16 stand rejected as being unpatentable over Ben-Shachar in view of U.S. Patent No. 5,675,795 to Rawson et al. (“Rawson”) and U.S. Patent No. 5,452,447 to Nelson et al. (“Nelson”). Claim 17 stands rejected as being unpatentable over Ben-Shachar in view of Rawson and JR (Java Reflective Broker). Claims 18 and 19 stand rejected as unpatentable over Ben-Shachar in view of Rawson, Nelson and Arno. Additionally, claims 20 and 21 stand rejected as being unpatentable over Ben-Shachar in view of Rawson, Nelson and U.S. Patent No. 5,742,759 to Nessett et al. (“Nessett”).

With respect to claim 1, the Examiner contends that Ben-Shachar discloses all of the features of claim 1, except the term appending a cluster. However, the examiner contends that Ben-Shachar teaches creating a service locator clone, and it would have been obvious to apply the teaching of Ben-Shachar because Ben-Shachar’s appending a cluster would perform another service locator instance when one service locator instance fails.

Applicants respectfully traverse the above rejection. Ben-Shachar, alone or in combination, does not teach or suggest all of the features of amended claim 1.

Applicants amended independent claims 1 and 15 to emphasize the transparent feature of the invention, specifically calling for the steps of, “establishing name service clusters for the object servers which each contain a unique object binding table that contains object server references [and] in response to a request from a client that invokes a cluster, performing a load balance by having the name service select an object server located in the invoked cluster.” Since the name service is inherent in CORBA”, “the fault tolerance, the load balance, and the failover are performed transparently” i.e., without modification to the network or its communication protocols. The applicant submits that the term transparent is defined as invisible to the user. The applicant attaches a copy of the definition of “transparency” and “transparent” from Newton’s Telecom Dictionary, 18th Edition, *CMP Books*, 2002, page 763. “Transparency” is defined there as the “transportation of information invisible to the user” and “transparent” as a “feature … the user … is totally unaware that it exists.” Additionally, Ben-Shachar itself uses the term transparent to indicate invisibility to a user. (See Col. 2, ll. 18-19; Col. 11 ll. 62-63).

Under claims 1, 9 and 15 the fault tolerance, load balance and failover occur transparently through the use of the CORBA name service. Specifically there are no changes in communication patterns or services, and there are no changes in user, client or server codes. Simply stated, transparency under claim 1 is achieved by embedding the functionality of fault tolerance, load balance and failover into the existing name service of the CORBA communication pattern, and performing those functions within the constraints of that communication pattern.

In contrast, Ben-Shachar does not embed functionality of performing the fault tolerance, load balance and failover into an existing communication pattern but instead builds a system on top of the existing CORBA infrastructure. This technique creates noticeable changes to a user, and therefore the fault tolerance, load balance and failover are not performed transparently. For instance, to enable load balancing and fault tolerance, Ben-Shachar requires infrastructure and services above and beyond the standard CORBA infrastructure. Specifically, Service Locator and Service Manager must be running to enable the two functions. As an example, Ben-Shachar

requires that a service proxy be included in the client (Fig. 3). For each new server type that client wants to talk to, a service proxy for that type must be generated on the client end. Essentially part of load balance logic actually lies on the client end in Ben-Shachar's solution. Also clients doing dynamic invocation on the server object will bypass the service proxy completely and will be cut out of Ben-Shachar's solution.

As admitted by the Examiner with respect to claim 14, Ben-Shachar's system does not include an "object binding table" as now recited in claims 1 and 15.

Further, the system of Ben-Shachar requires that the Server (which he calls Worker) be launched when necessary by Service object. This may require some modification in the server and some setup to make infrastructure aware of where the server resides. The present invention makes no demands on the server at all. The name service needs to know nothing about where the server is running.

In addition the system of Ben-Shachar requires additional infrastructure such as Service Locator, Service Manager, and etc. to enable load balancing. These are above and beyond what a normal CORBA infrastructure requires and do not correspond to the name service of CORBA, the system of Ben-Shachar is in operation in a CORBA environment and requires these additional units. In contrast, the present invention just requires the CORBA Name Service, which is a standard CORBA infrastructure that most customers are already using.

Ben-Shachar's system requires participants to change their existing communication patterns to enable load balancing. Instead of client talking to the name service to obtain an object reference of the server as is the norm, a client using the Ben-Shachar system must talk to a service locator, create a service, allocate a worker (server) and then obtain that server. The present invention does not impose the requirement that the client or server change any of their existing communication patterns.

The Examiner cites Col. 11, lines 1-6 and lines 12-17 to demonstrate that Ben-Shachar discloses creation of a naming service to perform load balancing within clusters. At lines 1-6 the only description is of the findService which returns the names of servers that can perform the function. Even then, this function is in the service locator, which is an element that must be

added to the system. Lines 12-17 describe a second level of load balance in which the service locator obtains statistics from all the services and provides the handle (name) of the least busy. However, again this is a separate piece of equipment that must be added to and accommodated in the Ben-Shachar system. It is not the existing name service of COBRA.

Moreover, Ben-Shachar may be classified as prior art, previously described in the Specification, at page 2, lines 14-25. Ben-Shachar's solution to load balancing and fault tolerance is best described as intrusive, not transparent, because it requires building a system or changing a system to make it load balance and fault tolerance aware. The service proxy, service locator, service object and worker all cooperate with one another as part of a close knit framework, thus making it impossible to perform a load balance or fault tolerance where a CORBA client and a CORBA server are both unaware of the framework. Since the entire system must be built based on the framework Ben-Shachar established, load balancing and fault tolerance are not performed transparently.

Based on the aforementioned, Ben-Shachar alone or in combination does not teach or suggest performing the fault tolerance, load balancing or failover in a transparent manner using the CORBA name service, and therefore does not render present claims 1, 9 and 15 unpatentable.

In rejecting claim 2 the Examiner also relies on the Ben-Shachar reference in combination with the **Java Reflective Broker reference (JR)**, which was cited to show the use of a port number and IP address. While, claim 2 uses the IP address and port number to bind a server to a client (See the Application, page 7, line 21 to 24) and JR shows the same communications protocol, JR fails to provide what is missing from Ben-Shachar, i.e., using the name service of COBRA to support load balancing, etc.

Claims 10, 12 and 13 were rejected on the Ben-Shachar reference in combination with the **Arno patent**, where the Arno patent was cited to show Round robin load balancing. However, like the JR reference, Arno fails to provide what is missing from Ben-Shachar, i.e., using the name service of COBRA to support load balancing. The Examiner cites the **Geoffrey reference** against claims 14, which specifically calls for the "binding table." This element has also been introduced into claims 1 and 15. However, Geoffrey merely discloses that such tables are common in CORBA, and fails to disclose its use for load balancing or failover.

Claim 16 was rejected on the Ben-Shachar reference in combination with the patent to **Nelson**, where Nelson was cited to show a configuration file. Claims 17 was rejected based on Ben-Shachar, the patent to **Rawson**, the patent to Nelson and the JR reference, where Rawson was cited to show a flag to activate implicit clustering. Claims 18 and 19 were rejected based on Ben-Shachar, the patent to Rawson, the patent to Nelson and the Arno patent. Claims 20 and 21 were rejected based on Ben-Shachar, the patent to Rawson, the patent to Nelson and a patent to **Nessett**, which was cited to show the clustering together of object reference bindings having identical names. While each of these may show some minor enhancement, none of the disclose or render obvious the main features of the invention as set forth in claims 1 and 15.

There does not appear to be any specific rejection of claim 22, which is directed to Smart Round Robin load balancing, based on prior art.

Newly added claims 23 and 24 are patentable for the same reasons as claims 1 and 15.

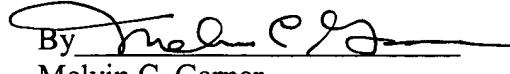
Conclusion

Each and every point raised in the Office Action dated February 9, 2005 has been addressed on the basis of the above amendments and remarks. In view of the foregoing it is believed that claims 1-24 are in condition for allowance and it is respectfully requested that the application be reconsidered and that all pending claims be allowed and the case passed to issue.

If there are any other issues remaining which the Examiner believes could be resolved through a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

Dated: June 3, 2005

Respectfully submitted,

By 

Melvin C. Garner

Registration No.: 26,272
DARBY & DARBY P.C.
P.O. Box 5257
New York, New York 10150-5257
(212) 527-7700
(212) 527-7701 (Fax)
Attorneys/Agents For Applicant